Agency for Healthcare Research and Quality
Advancing Excellence in Health Care

NATIONAL QUALITY MEASURES CLEARINGHOUSE

General

Title

Adult trauma care: percentage of injured patients age 18 years and older with documented decreased level of consciousness (GCS less than 9) in the ED and with successful insertion of endotracheal tube in the ED.

Source(s)

Guide to quality indicators in adult trauma care. Version 3. Calgary (AB): Quality of Trauma in Adult Care, University of Calgary; 2013 Jan 29. 129 p. [111 references]

Measure Domain

Primary Measure Domain

Clinical Quality Measures: Process

Secondary Measure Domain

Does not apply to this measure

Brief Abstract

Description

This measure is used to assess the percentage of injured patients age 18 years and older with documented decreased level of consciousness (Glasgow Coma Scale [GCS] less than 9) in the emergency department (ED) AND with successful insertion of endotracheal tube in the ED.

Rationale

Each year, injuries affect 700 million people worldwide and result in more than five million deaths. In many countries, injuries are the leading cause of death among those under the age of 45 years. The human and societal burden is even greater with many survivors never returning to school, work or their "regular" lives.

Health care services provide patients with treatment for what is a major cause of morbidity and death. Yet medical errors and substandard care threaten trauma care. Half of all patients with major traumatic

injuries do not receive recommended care, medical errors are common in critically ill trauma patients and preventable trauma deaths in hospital are widely reported. The World Health Organization (WHO), professional trauma organizations (e.g., American College of Surgeons [ACS], Trauma Association of Canada and Royal Australasian College of Surgeons) and accreditation bodies have promoted efforts to improve the quality of care delivered to injured patients. However, before the quality of injury care can be improved, it needs to be measured using reliable and valid measures of health care quality.

These indicators can be used to assess patient safety, and to evaluate and improve quality of care by incorporating these measures into local, regional or national quality improvement efforts. Implementing a consistent approach to measurement (same indicators, same definitions, same data elements, same reporting format) would provide institutions with reliable performance data that is necessary for surveillance (e.g., tertiary survey completion), to track local problems (e.g., adverse events – specifically missed injuries), evaluate the effects of interventions or program changes (e.g., tertiary survey protocol) and provide comparisons across centers (e.g., benchmarking adverse events using programs such as the ACS's Trauma Quality Improvement Program). Well-designed, carefully evaluated and appropriately implemented quality indicators (QIs) may be essential tools for guiding efforts to improve health and healthcare.

This indicator is intended to monitor endotracheal intubation for injured patients with a decreased level of consciousness in the emergency department (ED).

Evidence for Rationale

Guide to quality indicators in adult trauma care. Version 3. Calgary (AB): Quality of Trauma in Adult Care, University of Calgary; 2013 Jan 29. 129 p. [111 references]

Primary Health Components

Trauma care; injury; tracheal intubation; level of consciousness; Glasgow Coma Scale (GCS)

Denominator Description

Injured patients age 18 years and older with decreased level of consciousness (Glasgow Coma Scale [GCS] less than 9) in the emergency department (ED)

Numerator Description

All injured patients age 18 years and older with documented decreased level of consciousness (Glasgow Coma Scale [GCS] less than 9) in the emergency department (ED) AND with successful insertion of endotracheal tube in the ED

Evidence Supporting the Measure

Type of Evidence Supporting the Criterion of Quality for the Measure

A formal consensus procedure, involving experts in relevant clinical, methodological, public health and organizational sciences

One or more research studies published in a National Library of Medicine (NLM) indexed, peer-reviewed journal

Additional Information Supporting Need for the Measure

A 12-month prospective study was undertaken to observe current practice and to determine if a Glasgow Coma Scale (GCS) of less than 9 is a useful parameter to predict the need for airway protection in poisoning. An initial GCS of less than 9 had a sensitivity of 90% and specificity of 95% for predicting the need for intubation (Chan et al., 1993). Three studies showed no association between the quality indicator and hospital mortality (Copes et al., 1995; Nayduch et al., 1994; Willis, Stoelwinder, & Cameron, 2008); however, two studies demonstrated that implementation of a trauma quality improvement program that included the quality indicator was associated with reduced hospital mortality (Chadbunchachai et al., 2003; Chadbunchachai et al., 2001).

Evidence for Additional Information Supporting Need for the Measure

Chadbunchachai W, Saranrittichai S, Sriwiwat S, Chumsri J, Kulleab S, Jaikwang P. Study on performance following Key Performance Indicators for trauma care: Khon Kaen Hospital 2000. J Med Assoc Thai. 2003 Jan;86(1):1-7. PubMed

Chadbunchachai W, Sriwiwat S, Kulleab S, Saranrittichai S, Chumsri J, Jaikwang P. The comparative study for quality of trauma treatment before and after the revision of trauma audit filter, Khon Kaen hospital 1998. J Med Assoc Thai. 2001 Jun;84(6):782-90. PubMed

Chan B, Gaudry P, Grattan-Smith TM, McNeil R. The use of Glasgow Coma Scale in poisoning. J Emerg Med. 1993 Sep-Oct;11(5):579-82. PubMed

Copes WS, Staz CF, Konvolinka CW, Sacco WJ. American College of Surgeons audit filters: associations with patient outcome and resource utilization. J Trauma. 1995 Mar;38(3):432-8. PubMed

Guide to quality indicators in adult trauma care. Version 3. Calgary (AB): Quality of Trauma in Adult Care, University of Calgary; 2013 Jan 29. 129 p. [111 references]

Nayduch D, Moylan J, Snyder BL, Andrews L, Rutledge R, Cunningham P. American College of Surgeons trauma quality indicators: an analysis of outcome in a statewide trauma registry. J Trauma. 1994 Oct;37(4):565-73; discussion 573-5. PubMed

Willis CD, Stoelwinder JU, Cameron PA. Interpreting process indicators in trauma care: construct validity versus confounding by indication. Int J Qual Health Care. 2008 Oct;20(5):331-8. PubMed

Extent of Measure Testing

Using a modification of the RAND/University of California, Los Angeles (UCLA) Appropriateness Methodology, a panel of 19 injury and quality of care experts serially rated and revised quality indicators identified from a systematic review of the literature and international audit of trauma center quality improvement practices. The quality indicators developed by the panel were sent to 133 verified trauma centers in the United States, Canada, Australia, and New Zealand for evaluation.

A total of 84 quality indicators were rated and revised by the expert panel over 4 rounds of review producing 31 quality indicators of structure (n=5), process (n=21), and outcome (n=5), designed to assess the safety (n=8), effectiveness (n=17), efficiency (n=6), timeliness (n=16), equity (n=2), and patient-centeredness (n=1) of injury care spanning prehospital (n=8), hospital (n=19), and posthospital (n=2) care and secondary injury prevention (n=1). A total of 101 trauma centers (76% response rate) rated the indicators (1=strong disagreement, 9=strong agreement) as targeting important health improvements (median score 9, interquartile range [IQR] 8 to 9), easy to interpret (median score 8, IQR 8

to 9), easy to implement (median score 8, IQR 7 to 8), and globally good indicators (median score 8, IQR 8 to 9).

Thirty-one evidence-informed quality indicators of adult injury care were developed, shown to have content validity, and can be used as performance measures to guide injury care quality improvement practices.

Trauma centers rated the indicator "percentage of injured patients age 18 years and older with documented decreased level of consciousness (Glasgow Coma Scale [GCS] less than 9) in the emergency department (ED) and with successful insertion of endotracheal tube in the ED" as targeting important health improvements (median score 9, IQR 8 to 9), easy to interpret (median score 9, IQR 8 to 9), easy to implement (median score 9, IQR 8 to 9), and globally a good indicator (median score 9, IQR 8 to 9).

Evidence for Extent of Measure Testing

Santana MJ, Stelfox HT, Trauma Quality Indicator Consensus Panel. Development and evaluation of evidence-informed quality indicators for adult injury care. Ann Surg. 2014 Jan;259(1):186-92. [35 references] PubMed

State of Use of the Measure

State of Use

Current routine use

Current Use

not defined yet

Application of the Measure in its Current Use

Measurement Setting

Emergency Department

Professionals Involved in Delivery of Health Services

not defined yet

Least Aggregated Level of Services Delivery Addressed

Single Health Care Delivery or Public Health Organizations

Statement of Acceptable Minimum Sample Size

Unspecified

Target Population Age

Age greater than or equal to 18 years

Target Population Gender

Either male or female

National Strategy for Quality Improvement in Health Care

National Quality Strategy Aim

Better Care

National Quality Strategy Priority

Prevention and Treatment of Leading Causes of Mortality

Institute of Medicine (IOM) National Health Care Quality Report Categories

IOM Care Need

Getting Better

IOM Domain

Effectiveness

Data Collection for the Measure

Case Finding Period

Unspecified

Denominator Sampling Frame

Patients associated with provider

Denominator (Index) Event or Characteristic

Clinical Condition

Diagnostic Evaluation

Encounter

Patient/Individual (Consumer) Characteristic

Denominator Time Window

not defined yet

Denominator Inclusions/Exclusions

Inclusions
Injured patients age 18 years and older with decreased level of consciousness (Glasgow Coma Scale [GCS] less than 9) in the emergency department (ED)

Exclusions
Unspecified

Exclusions/Exceptions

not defined yet

Numerator Inclusions/Exclusions

Inclusions
All injured patients age 18 years and older with documented decreased level of consciousness (Glasgow Coma Scale [GCS] less than 9) in the emergency department (ED) AND with successful insertion of endotracheal tube in the ED

Exclusions
Unspecified

Numerator Search Strategy

Encounter

Data Source

Paper medical record

Registry data

Type of Health State

Does not apply to this measure

Instruments Used and/or Associated with the Measure

Unspecified

Computation of the Measure

Measure Specifies Disaggregation

Does not apply to this measure

Scoring

Rate/Proportion

Interpretation of Score

Desired value is a higher score

Allowance for Patient or Population Factors

not defined yet

Standard of Comparison

not defined yet

Identifying Information

Original Title

Tracheal intubation.

Measure Collection Name

Quality Indicators in Adult Trauma Care

Measure Set Name

Hospital Indicators

Submitter

Quality of Trauma in Adult Care (QTAC) Team, University of Calgary - Academic Institution

Developer

Quality of Trauma in Adult Care (QTAC) Team, University of Calgary - Academic Institution

Funding Source(s)

The project was supported by a Partnerships in Health System Improvement Grant (PHE-91429) from the Canadian Institutes of Health Research and Alberta Innovates Health Solutions. Funding sources had no role in the design, conduct, or reporting of this study.

Composition of the Group that Developed the Measure

- Dr. H. Thomas Stelfox, Principal Investigator, University of Calgary
- Dr. Maria-Jose Santana, Co-investigator, University of Calgary
- Diane Lorenzetti, Library Science, University of Calgary
- Jamie Boyd, Research Coordinator, University of Calgary
- Nancy Clayden, Research Assistant, University of Calgary
- Colleen M. Sharp, Research Assistant, University of Calgary

Expert Panel

- Dr. Mark Asbridge, Faculty Member, Dalhousie University
- Dr. Chad G. Ball, Fellowship in Trauma, Critical Care and Hepatobiliary Surgery, Calgary
- Dr. Peter Cameron, Professor and Head of Critical Care Division, Head of Victorian State Trauma Registry, Associate Director of National Trauma Research Institute, Melbourne, Australia
- Diane Dyer, Consultant, Alberta Health Services
- Dr. Louis Hugo Francescutti, Past President of Royal College of Physicians and Surgeons of Canada, Professor, University of Alberta
- Marie Claire Fortin, Clinical Registries Manager, CIHI and Faculty Member, University of Toronto
- Dr. Ken Jaffe, Professor of Rehabilitation Medicine and Adjunct Professor of Pediatrics and Neurological Surgery, University of Washington School of Medicine
- Dr. Andrew W. Kirkpatrick, Past President Trauma Association of Canada, Professor of Critical Care Medicine and Surgery, University of Calgary
- Dr. John Kortbeek, Professor and Head of Department of Surgery, University of Calgary
- Dr. Karen Kmetik, Vice President of Performance Improvement American Medical Association
- Dr. Lynne Moore, Assistant Professor of Epidemiology/Biostatistics, Laval University
- Dr. Avery Nathens, Canada Research Chair in Trauma Systems Development, Professor of Surgery, University of Toronto
- Dr. Nick Phan, Division of Neurosurgery, University of Toronto
- Dr. Fred Rivara, Seattle Childrens Guild Endowed Chair in Pediatrics, Professor in Pediatrics, University of Washington
- Bryan Singleton, Senior Manager for Emergency Health Services, Paramedic, Alberta Ministry of Health and Wellness
- Dr. Marc Swiontkowski, CEO of TRIA Orthopedic Center, University of Minnesota
- Dr. John Tallon, Past President Trauma Association of Canada, Associate Professor of Emergency Medicine and Surgery, Dalhousie University
- Dr. Andrew Travers, Medical Director of Nova Scotia Emergency Medical Systems, Assistant Professor, Dalhousie Emergency Department of Medicine
- Dr. Dave Zygun, Associate Professor of Critical Care Medicine, University of Calgary
- Dr. Tom Noseworthy, Professor of Health Policy and Management, University of Calgary
- Dr. Sharon Straus, Canada Research Chair in Knowledge Translation, University of Toronto

Financial Disclosures/Other Potential Conflicts of Interest

The project was supported by a Partnerships in Health System Improvement Grant (PHE-91429) from the Canadian Institutes of Health Research and Alberta Innovates Health Solutions. Dr Stelfox was supported by a New Investigator Award from the Canadian Institutes of Health Research and a Population Health Investigator Award from Alberta Innovates Health Solutions. Funding sources had no role in the design, conduct, or reporting of this study. The authors declare no conflicts of interest.

Adaptation

This measure was not adapted from another source.

Date of Most Current Version in NQMC

2013 Jan

Measure Maintenance

Unspecified

Date of Next Anticipated Revision

Unspecified

Measure Status

This is the current release of the measure.

Measure Availability

Source available from the Quality of Trauma in Adult Care (QTAC) Web site .

This work is also available from the Annals of Surgery Web site : Santana MJ, Stelfox HT, Trauma Quality Indicator Consensus Panel. Development and evaluation of evidence-informed quality indicators for adult injury care. Ann Surg. 2014 Jan;259(1):186-92.

For more information, contact QTAC at the University of Calgary, Teaching Research & Wellness (TRW) Building, 3rd Floor, 3280 Hospital Drive NW, Calgary, AB, Canada, T2N 4Z6; Phone: 403-944-2334; Fax: 403-283-9994; E-mail: qtac@qualitytraumacare.com; Web site: www.qualitytraumacare.com .

NQMC Status

This NQMC summary was completed by ECRI Institute on May 11, 2015. The information was verified by the measure developer on July 13, 2015.

Copyright Statement

For more information, contact Tom Stelfox, MD, PhD, at the University of Calgary, Teaching Research & Wellness (TRW) Building, 3rd Floor, 3280 Hospital Drive NW, Calgary, AB, Canada, T2N 4Z6; Phone: 403-944-2334; Fax: 403-283-9994; E-mail: tstelfox@ucalgary.ca.

Production

Source(s)

Guide to quality indicators in adult trauma care. Version 3. Calgary (AB): Quality of Trauma in Adult Care, University of Calgary; 2013 Jan 29. 129 p. [111 references]

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